

# **EXHIBIT 9**

## **REDACTED**



# Display Ads Infrastructure WAT at a Glance

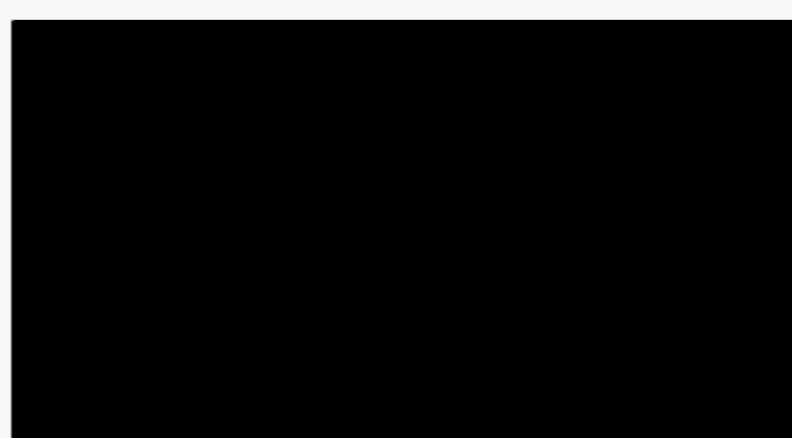
Updated August 2019

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## Display Ads

[go/display-ads-summary](#)

**Display ads** encompasses all ads served by Google, except those served on google.com search pages (aka “Search Ads”) and some of the ads served by YouTube (aka “YouTube Ads / Viral”). This includes ads served on major online publications, blogs, mobile apps, third-party ad exchanges, some of Google’s own properties (YouTube<sup>1</sup>, Gmail, Image Search, Google Play), etc. Display ads are the primary monetization mechanism of the web/apps ecosystems, funding publishers and authors, and keeping most of the internet content free to end users.

Ad serving consists primarily of mediating between interests of 3 groups:

- **Publishers**, who own the monetized “properties”.
- **Users**, who consume content on said properties; this triggers “ad requests” to Google.
- **Advertisers**, who provide Google with ads to show, and we select the best one from these.

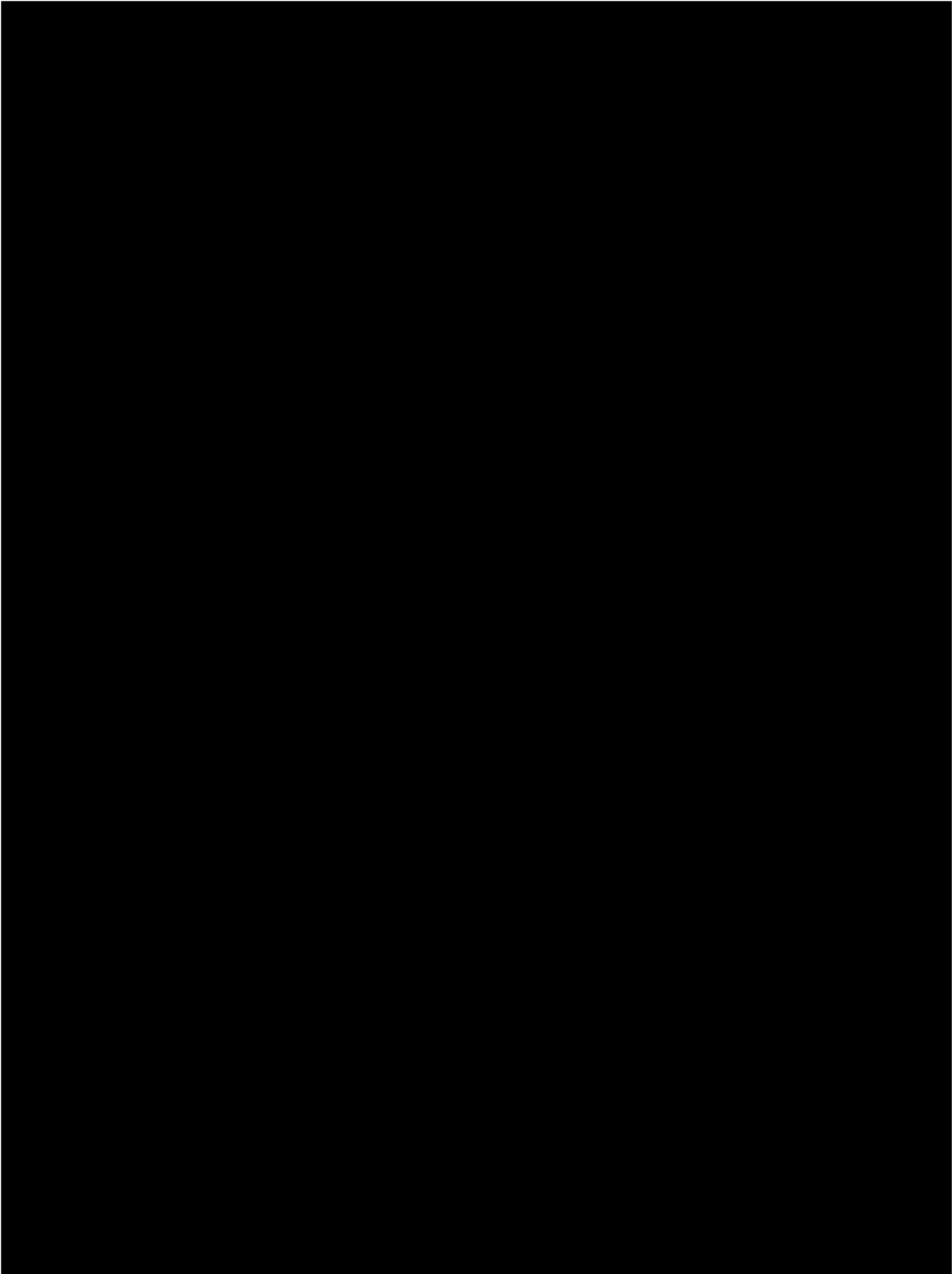
A key challenge in Display Ads serving is that we have to **infer** what might interest the user, unlike serving ads on search pages, where the user has explicitly provided this information in the search box. See this [guide to Display Ads](#) for a high level technical overview.

The Display Ads org has evolved over time, with [DVAA](#) (Display, Video, Apps Ads and

<sup>1</sup>



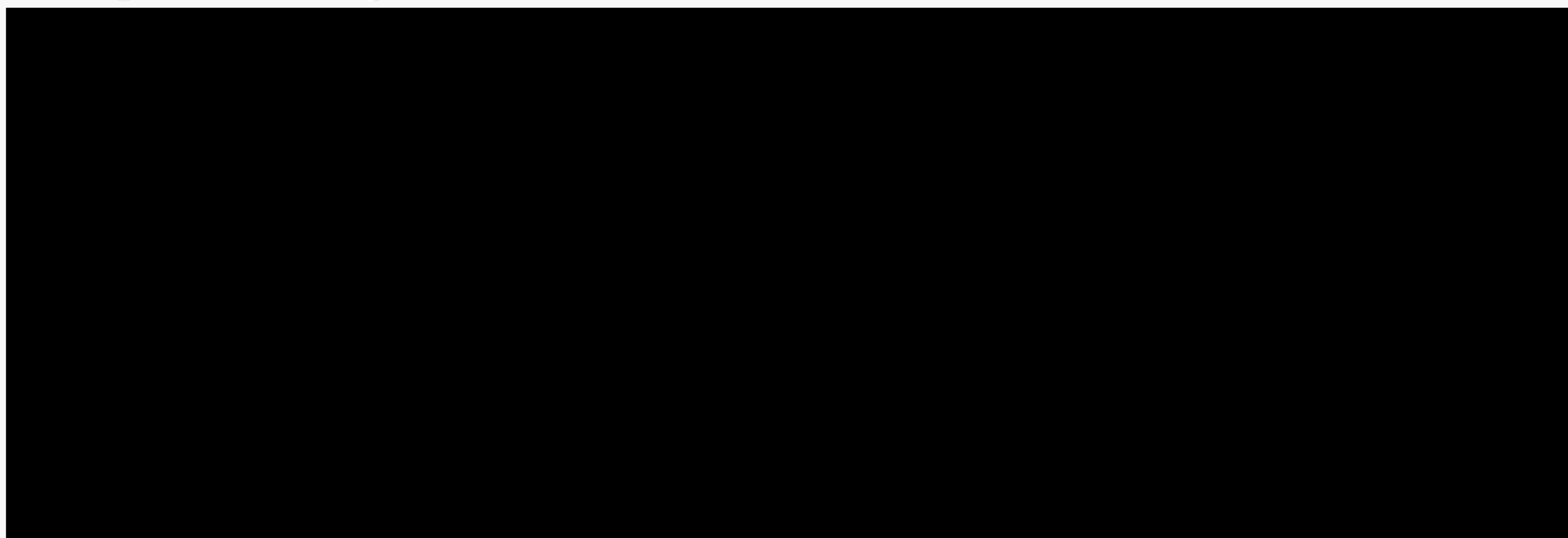




The Experiments team develops the infrastructure and tools that allow Display Ads engineers to run experiments on fractions of live Ads requests, helping them to select and launch the best improvements to achieve their quarter-over-quarter RPM goals. The Experiments team also provides the experimenters with mechanisms to gradually ramp up/down a feature and red-buttons for controlling the flow of traffic through the Display Ads stacks.

For a more detailed overview, see: [Experiments overview](#)

**Key Stats:** (as of Aug'19):



**Key Projects**

